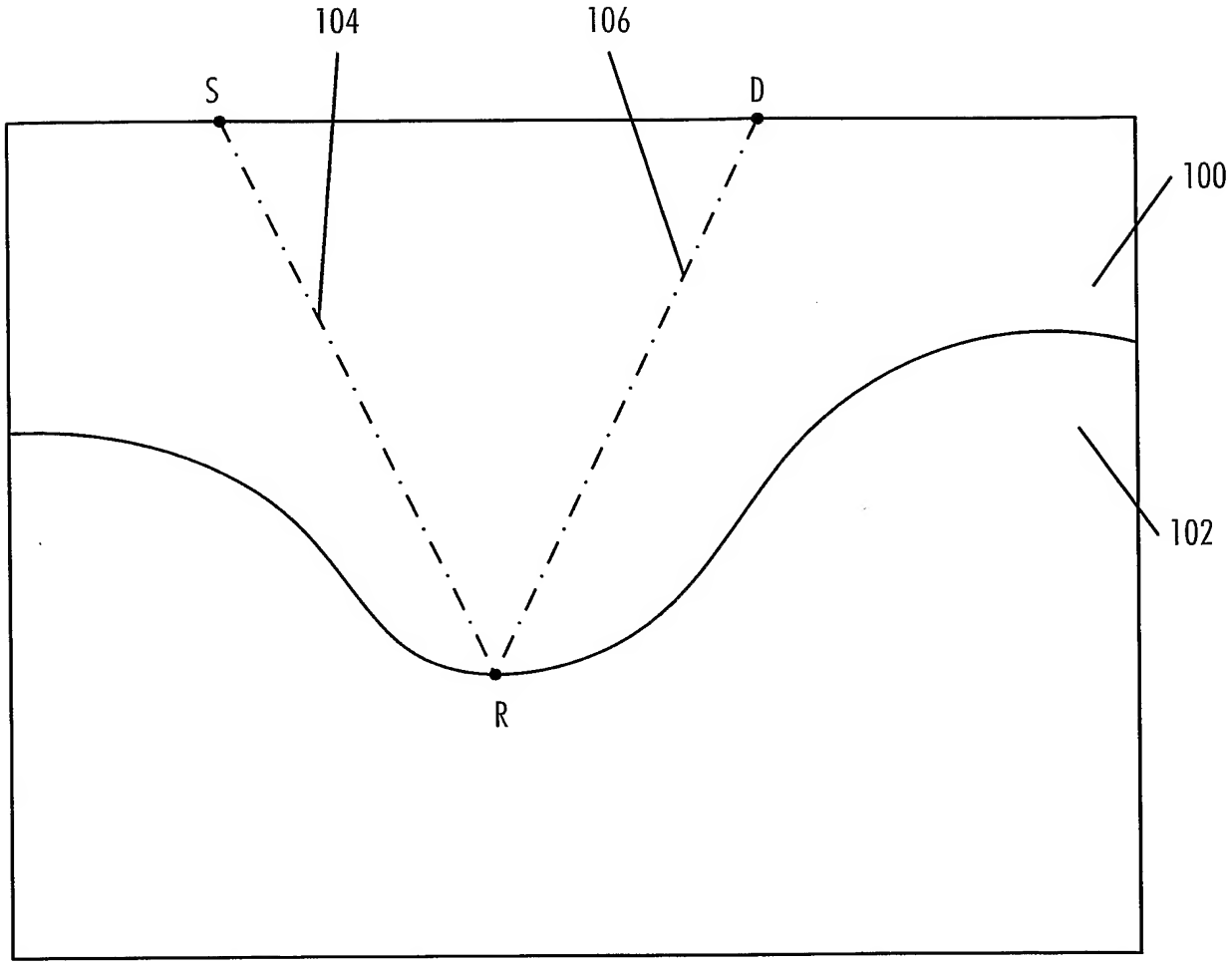

FIGURE 1

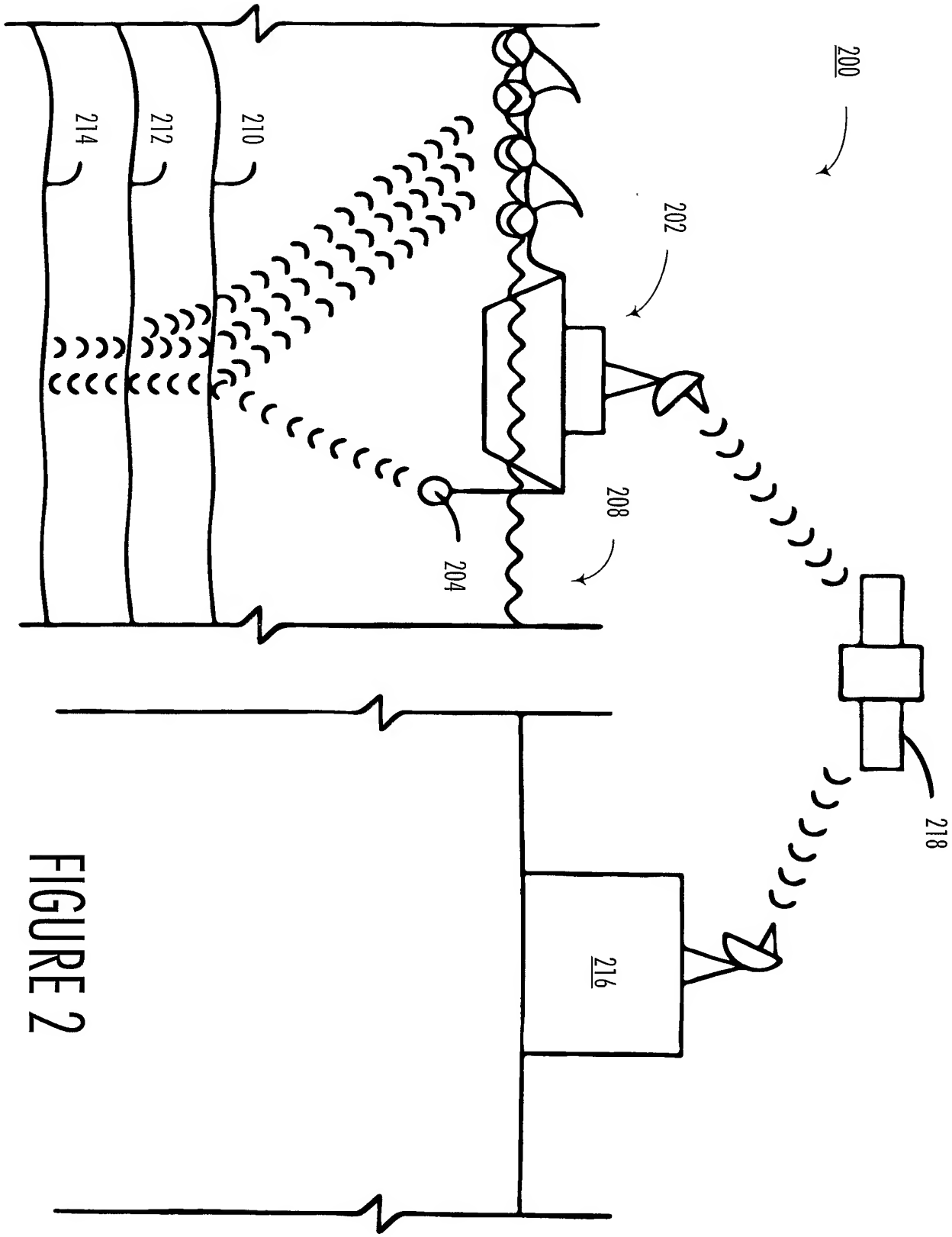

FIGURE 2

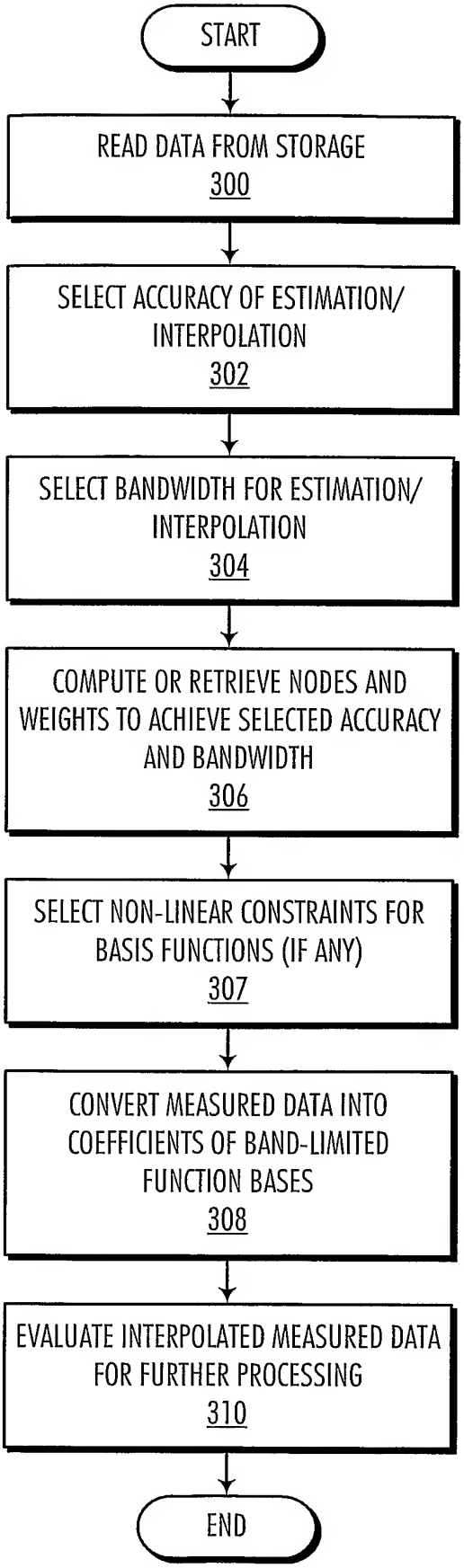
START
READ DATA FROM STORAGE
300
SELECT ACCURACY OF ESTIMATION/ INTERPOLATION
302
SELECT BANDWIDTH FOR ESTIMATION/ INTERPOLATION
304
COMPUTE OR RETRIEVE NODES AND WEIGHTS TO ACHIEVE SELECTED ACCURACY AND BANDWIDTH
306
SELECT NON-LINEAR CONSTRAINTS FOR BASIS FUNCTIONS (IF ANY)
307
CONVERT MEASURED DATA INTO COEFFICIENTS OF BAND-LIMITED FUNCTION BASES
308
EVALUATE INTERPOLATED MEASURED DATA FOR FURTHER PROCESSING
310
END

FIGURE 3

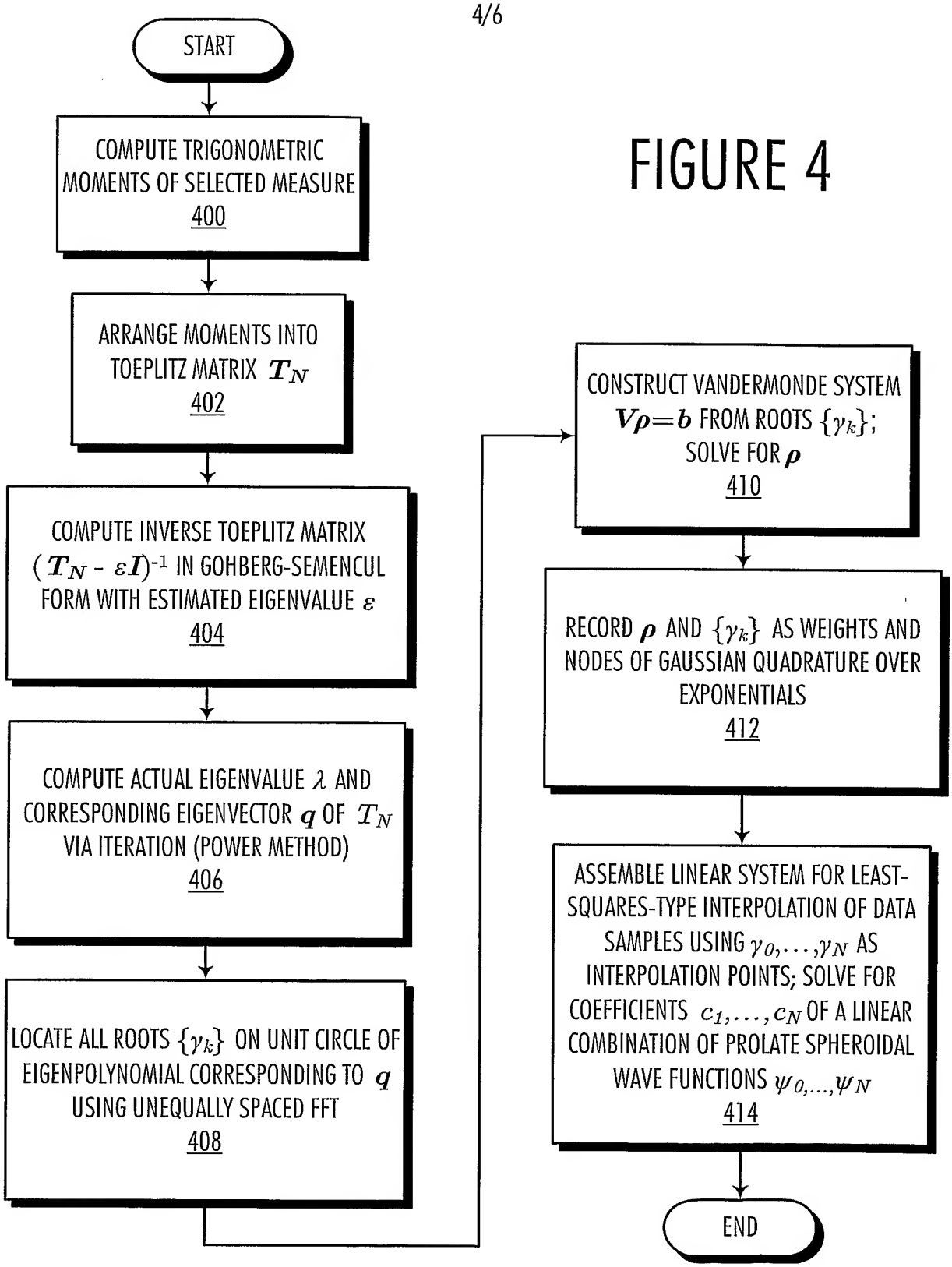
START
COMPUTE TRIGONOMETRIC MOMENTS OF SELECTED MEASURE 400
ARRANGE MOMENTS INTO TOEPLITZ MATRIX T_N 402
COMPUTE INVERSE TOEPLITZ MATRIX $(T_N - \varepsilon I)^{-1}$ IN GOHBERG-SEMENCUL FORM WITH ESTIMATED EIGENVALUE ε 404
COMPUTE ACTUAL EIGENVALUE λ AND CORRESPONDING EIGENVECTOR q OF T_N VIA ITERATION (POWER METHOD) 406
LOCATE ALL ROOTS $\{\gamma_k\}$ ON UNIT CIRCLE OF EIGENPOLYNOMIAL CORRESPONDING TO q USING UNEQUALLY SPACED FFT 408
CONSTRUCT VANDERMONDE SYSTEM $V\rho = b$ FROM ROOTS $\{\gamma_k\}$; SOLVE FOR ρ 410
RECORD ρ AND $\{\gamma_k\}$ AS WEIGHTS AND NODES OF GAUSSIAN QUADRATURE OVER EXPONENTIALS 412
ASSEMBLE LINEAR SYSTEM FOR LEAST-SQUARES-TYPE INTERPOLATION OF DATA SAMPLES USING $\gamma_0, \ldots, \gamma_N$ AS INTERPOLATION POINTS; SOLVE FOR COEFFICIENTS $c_1, \ldots, c_N$ OF A LINEAR COMBINATION OF PROLATE SPHEROIDAL WAVE FUNCTIONS $\psi_0, \ldots, \psi_N$ 414
END

FIGURE 4

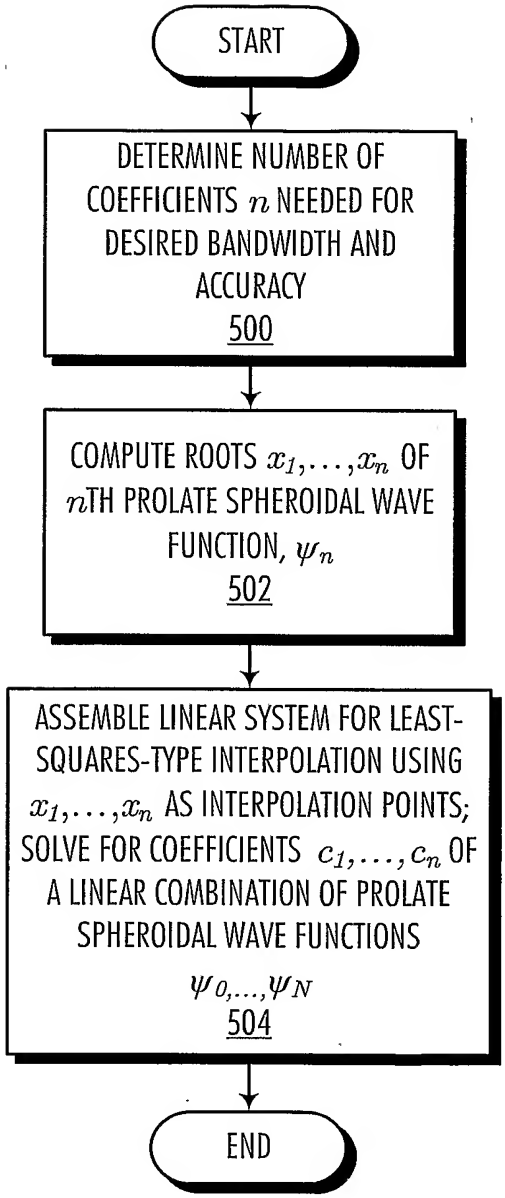
START
DETERMINE NUMBER OF COEFFICIENTS n NEEDED FOR DESIRED BANDWIDTH AND ACCURACY
500
COMPUTE ROOTS $x_1,\ldots,x_n$ OF nTH PROLATE SPHEROIDAL WAVE FUNCTION, ψ_n
502
ASSEMBLE LINEAR SYSTEM FOR LEAST-SQUARES-TYPE INTERPOLATION USING $x_1,\ldots,x_n$ AS INTERPOLATION POINTS; SOLVE FOR COEFFICIENTS $c_1,\ldots,c_n$ OF A LINEAR COMBINATION OF PROLATE SPHEROIDAL WAVE FUNCTIONS $\psi_0,\ldots,\psi_N$
504
END

FIGURE 5

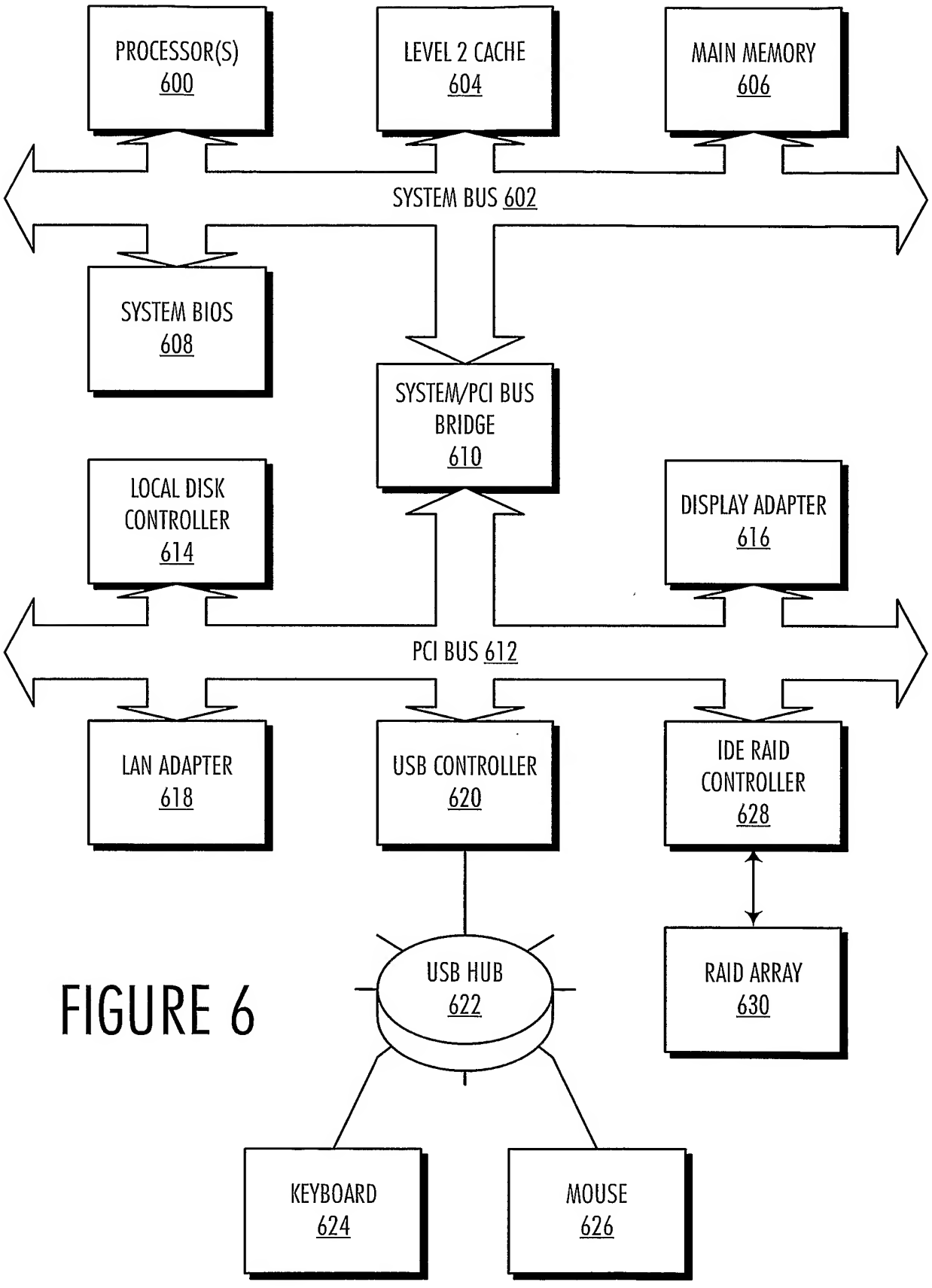
PROCESSOR(S)
600
LEVEL 2 CACHE
604
MAIN MEMORY
606
SYSTEM BUS 602
SYSTEM BIOS
608
SYSTEM/PCI BUS
BRIDGE
610
LOCAL DISK
CONTROLLER
614
DISPLAY ADAPTER
616
PCI BUS 612
LAN ADAPTER
618
USB CONTROLLER
620
IDE RAID
CONTROLLER
628
USB HUB
622
RAID ARRAY
630
KEYBOARD
624
MOUSE
626

FIGURE 6